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ABSTRACT

Research has been conducted regarding the linguistic structure of children's language usage. There has not, however, been an attempt to relate children's knowledge of vocabulary to their teachers' use of vocabulary. The purpose of this study was to examine the relationship between the vocabulary used by teachers and the proportion of that vocabulary known by the children in their classrooms. Eight kindergarten and eight first grade teachers from seven schools in a north-central Florida community volunteered to participate in the study. Language samples were tape recorded for each of the teachers during their normal working day. The samples were used to construct word lists and children were then tested for their knowledge of words from these lists. Congruence scores were derived on the basis of words particular teachers used and the percentage of those words their children knew. The high frequency words used by teachers are on the Thorndike-Lorge list. The independent variable contributing most to differences in congruence scores was socio-economic background. The recommendation was made that no efforts towards replication of the study be made because the time required seemed excessive for the results obtained. The word lists resulting from this study appear to be sufficiently reliable that they can serve as a base for subsequent testing of children. (Author)

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FINAL REPORT

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RELATIONSHIP BETWEEN TEACHER VOCABULARY USAGE AND THE VOCABULARY OF KINDERGARTEN AND FIRST GRADE STUDENTS

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Summary

Research has been conducted regarding the linguistic structure of children's language usage. There has not, however, been an attempt to relate children's knowledge of vocabulary to their teachers' use of vocabulary. The purpose of this study was to examine the relationship between the vocabulary used by teachers and the proportion of that vocabulary known by the children in their classrooms. Eight kindergarten and eight first grade teachers from seven schools in a north-central Florida community volunteered to participate in the study. Language samples were tape recorded for each of the teachers during their normal working day. The samples were used to construct word lists and children were then tested for their knowledge of words from these lists. Congruence scores were derived on the basis of words particular teachers used and the percentage of those words their children knew. The words were categorized according to frequency of usage by the teachers and according to whether known or not known by the pupils. In general, the high frequency words used by teachers are listed on the Thorndike-Lorge most frequently used list. In addition, the pupils tend to know a relatively large percentage of the words. The vocabulary congruence scores were analyzed according to race, socio-economic background, and grade level. The independent variable contributing most to differences in congruence scores was socio-economic background. Although there were differences in congruence scores produced as a function of race and grade level, the most influential effect was that of socio-economic background. The recommendation was made that no efforts towards replication of the study be made because the time required seemed excessive for the results obtained. The word lists resulting from this study appear to be sufficiently reliable that they can serve as a base for subsequent testing of children.

There is a serious deficiency in our knowledge regarding the level of vocabulary used in the classroom by teachers of the young child. It has not been established whether a teacher must modify his spoken vocabulary to communicate effectively with young children. Even if there may be some rationale for thinking that modification would be necessary when adults speak with children rather than with other adults, it is not clear how or if the teacher adjusts his vocabulary level to ensure comprehension. Apparently, advice freely given on how to talk to children is based on personal experience rather than on empirically derived data. Therefore, this study was designed to catalog words actually used in kindergarten and first grade classrooms and the degree to which those words were known to the pupils.

Review of Related Research

Emphasis has traditionally been placed upon the importance of preschool training in language acquisition. In 1942 Dawe demonstrated the feasibility of instituting preschool language programs in a group of orphanage children who had limited contact with adults (Dawe, 1943). Twenty years later Sears and Dowley (1963) reviewed studies related to the effect of nursery school attendance on language development and mentioned no studies concerned with the level of vocabulary and language used by teachers at this level. They do refer to a statement made by McCarthy (1945) who suggested that since nursery school results in more contact with children, adult speech patterns might be "slower to develop in children attending nursery school" (p. 850). The implication is clear that the influence of adult speakers is expected to improve the language skills of children. The assumption is also implicit that much language learning will take place because of the child's ability to supply meaning to new or unknown words by the context in which they appear. Dale (1965), however, refers to an unpublished study showing that the ability of children to supply word meanings from context is generally overestimated. This suggests that it might be easy for a primary grade teacher to talk above the vocabulary level of the children in her classes. In fact, there is a distinct possibility that the teachers considered "best" at this level would attempt to introduce new words so that the children could infer their meaning from context.

Considerable effort has been extended in the linguistic analysis of children's language (Loban, 1963; Strickland, 1962), but there were no comparable analyses of teacher's language until Kean (1968) studied the oral classroom language of second and fifth grade teachers. Kean found that there was virtually no difference in the language behavior of the teachers between the two grade levels. This may mean either that the teachers at the lower grade level feel no need to modify their oral language behavior to suit the language level of the youngsters or that the teachers at the upper grade are working at a language level somewhat less sophisticated than might seem appropriate for their pupils. Kean made no analysis of the children's knowledge of words or of their ability to comprehend the teachers so it is not clear which alternative is more reasonable.

Results of a study by Strickland (1962) offer some support regarding non-congruence between materials prepared for children and children's language patterns. She reported that the level of language usage found in typical pre-primers was lower than that characteristically used by the children. She did not investigate the level of vocabulary found in the books or used by the children. Strickland emphasized that "the emphasis on words and word control in children's textbooks has overshadowed concern for the arrangements in which the words have been set. The current generally accepted plan of restricting the vocabulary of children's books to words which occur most frequently in word lists compiled almost a generation ago seems unrealistic and detrimental in view of the wide vocabulary to which children react today . . ."(p. 3). Unfortunately, Strickland was concerned only with "non-deprived" children for whom the statements are clearly applicable. It is not clear how accurate the statements are when applied to culturally disadvantaged children or to children from varying cultural backgrounds.

Hess and Shipman (1965) investigated the language which mothers used in talking with their children. A sample of Negro mothers and their four-year-old youngsters was used. The results indicated that language complexity is a function of social class. The use of abstract words varies with economic level, with the middle-class mothers tending to use more abstract words and more complex syntactic structures than the lower-class mothers. Hess and Shipman concluded:

> "The picture that is beginning to emerge is that the meaning of deprivation is a deprivation of meaning--a cognitive environment in which behavior is controlled by status rule rather than by attention to the individual characteristics of a specific situation and one in which behavior is not mediated by verbal cues or by teaching that relates events to one another and the present to the future" (p. 885).

Dale (1965) found that words known by youngsters varied as a function of social class. It is important to note that the variation is not only with respect to vocabulary size but also with respect to the kinds of words which are known (Dale, 1967, personal communication). One can readily imagine the conflict which might appear when a "deprived" youngster approaches a "middle-class" teacher for information.

Peisach (1965) found a "language barrier" between the middle-class teacher and the lower-class child. The barrier was largest in the higher elementary grades. One reason for not finding more discrepancy at the lower grades may be due to the methods she used for measuring the difficulty level of the teachers' speech. At the lower grade levels a modified "cloze" procedure was used. Rather than omitting every fifth word, which is the usual technique, she simply omitted the last word of each sentence. The child's task was to supply the missing word. The degree of constraint introduced by this procedure is somewhat higher than by the usual method and the interpretation of the difficulty level of the material might be questioned. The indications, however, are clearly in the direction of a communication or language gap between the teachers and pupils.

It is clear from published material about the language usage of teachers at the elementary level that there is need for analysis of what the teachers do as well as what the children are able to comprehend. That is, much of the research has studied the children's capability to understand what is presented to them in the form of written material. Some research has been done with the way mothers speak to their children but there has been very little systematic study of the teachers' use of language in the classroom. There has apparently been no study of the kindergarten and first grade teacher's classroom vocabulary usage. This study was designed to investigate the vocabulary used by the teacher during a normal classroom day and further to determine whether or not the children know the meaning of the words used by their teachers.

Since the study was designed primarily as exploratory in nature, only two general questions were specified. These questions were: 1) What is the general vocabulary used by classroom teachers in the kindergarten and first grades; and 2) What is the extent that words used by the teachers are known to the pupils? In addition to these general questions, more specific questions were asked related to the effects of teachers' social class background, race, and grade level on their ability to "match" their vocabulary output to the child's word knowledge. A major contribution of this study is seen as the tabulation of words used by teachers at the kindergarten and first grade levels and the assessment of children's knowledge of those words.

Method and Procedures

Sample. Seven schools in Alachua County (North Central Florida) were selected on the assumption that they were fully integrated in both teachers and pupils. It is the policy of the Alachua County School System that teachers cannot be conscripted to participate in research so the project was fully explained and volunteers solicited. Approximately 40 kindergarten and first grade teachers heard the explanation and of these, 30 volunteered to participate. Twenty-four of the teachers were then selected from the volunteers on the basis of their race (Negro or Caucasian) and social class (based on father's occupation). An appointment was then made with each of the teachers to do the recording. After data collection was begun, several teachers from one of the schools declined to participate. There is no apparent explanation for this, but it tended to unbalance the sample on the variable of teacher's race. All of the teachers who declined were Negro. The sample was thus reduced to 17 teachers with only 3 Negro teachers, 2 kindergarten and 1 first grade. The variable of socio-economic background was less affected and the balance between lower and middle class was approximately maintained. We then dropped one of the white-middle-socio-economic background teachers so that we had a total of 16 teachers. It was decided to pursue the project, both fall and spring testing, with these 16 teachers. Unfortunately, at mid-year one of the teachers whose fall data was completely analyzed moved away. In the process of finding a comparable replacement, we added 3 new teachers to the sample. This meant that for the spring analysis there were 10 kindergarten and 8 first-grade teachers in our sample. Of these 18 teachers, 15 had participated from the beginning of the study.

Children were selected from each teacher's classroom for testing of word knowledge. In selecting the children, an attempt was made to maintain balance on socio-economic level, race, and sex. For the fall testing, 6 children from each of the classrooms were selected. We were able to maintain approximate balance on the dimensions of socio-economic level and sex but were unable to do so on the dimension of race. For the spring testing, we selected as many of the original 6 from each classroom as possible and then selected 2 more in an attempt to adjust the balance. In some cases we were able to do so, but there were still some combinations of teacher characteristics and pupil characteristics we were unable to locate. For example, there was only one white pupil in the classrooms of the black teachers. This meant that it was impossible to maintain complete balance for all of the desired independent variables.

Determination of Socio-Economic Level. All classifications of socio-economic levels for both teachers and children were done according to Duncan's (1961) procedure. Duncan determined that classifications made on the basis of the occupation of the head of the household produced as accurate a rating as when multiple criteria were used. The teachers' fathers' occupations were used and these were determined by simply asking each teacher what her father's

occupation was. It is important to note that two assumptions were made to justify this procedure. It was first assumed that all of the teachers would be classed at the same socio-economic level if their present occupation was used for the determination. It was then assumed that one's socio-economic background would have an influence on subsequent behavior and language usage and that this influence would be stronger than that expected from the move into the teaching profession.

Duncan (1961) indicated that one would expect to make some misclassifications by using only the occupation of the head of the household. Most of these errors would be expected at the juncture of "manual" and "white collar" classifications. We would expect to misclassify only 10.6 percent of white collar workers and 12.1 percent of manual workers (Duncan, 1961, p. 159). In the case of the teachers used in this study, the error should be minimal since most of them came from backgrounds which were clearly in one category or the other.

The socio-economic status of the children was determined in the same way as it was for the teachers. Again, we anticipated minimal error in the classification of middle and lower class status.

Method of sampling teachers' vocabulary. In order to interfere as little as possible with the classroom teacher's normal activity, no outsider was present in the room during the sampling periods. This was accomplished by using an FM wireless microphone (Sonar SFM-304). The transmitter measured 27 mm by 63 mm by 75 mm in size so was relatively easy for the teacher to carry in an apron or dress pocket. In some cases, the teachers forgot to wear clothing with a pocket and the transmitter was attached to a belt. The microphone was clipped to the teacher's dress and was small enough that it was hardly noticeable. The size of the microphone was only 13 mm by 20 mm by 8 mm with a clip measuring about 42 mm in length. The microphone assembly was so inconspicuous that a number of the teachers commented that they had "really forgotten" they were wearing it. A portable FM receiver (AIWA AR-142) and portable tape recorder (AIWA TP-713) were located outside the classroom during the recording session. Each teacher was recorded at random intervals during an entire teaching session. Approximately one and one-half hours of recording were made for each teacher.

The tape recordings were then transcribed and the typewritten transcripts were carefully checked for accuracy. No effort was made to ensure that the materials were correctly punctuated or paragraphed but only to ensure that all words used were included in the transcript. The words used on the transcripts were then listed and frequency counts made for each teacher. These lists were carefully checked for accuracy and then combined into two lists, one for kindergarten and one for first grade, including all of the words used and their frequency of occurrence.

Construction of children's vocabulary tests. There were two needs to be met in this study by the vocabulary test lists for the children. The first need was to obtain an estimate of the proportion of the words used by a teacher which were known to that teacher's pupils. The second need was to obtain estimates of the child's ability to supply adequate meaning for words generally used by teachers at the kindergarten and first grade level. In order to meet both of these needs it was necessary to include in each test words which were used by other teachers as well as by a child's own teacher. We constructed ten lists of 50 words each for kindergarten and ten lists of 50 words each for first grade. The words were sampled randomly from the lists of all the words used by teachers for each of the two grade levels. Using the technique of sampling randomly, regardless of frequency of occurrence of the individual words on the lists, meant that some words might be missed and not appear on any testing list, but it also meant that a representative vocabulary used by teachers in our study would be tested on the children.

The word lists were assigned randomly to the children with the only restriction that each list be used about the same number of times. This meant that every word on the lists was tested at least four times in the fall and at least five times in the spring. Occasionally, due to random sampling a word appeared on more than one list and therefore was tested more times than other words.

Procedure for testing children's knowledge of words. Each child was tested individually. The procedure used was to simply ask the youngster if he knew what a given word meant. If he responded with "yes" he was asked what the word meant. The reason for using both techniques was to determine if, indeed, simply asking the child if he knew a word would produce a valid indication of his knowledge of the word. It is interesting that even when the child was asked what a word meant the testing could be done in less than a half hour for most of the children.

The children's responses to the vocabulary items were scored as correct if the child could provide any meaningful referent to the word or if he used the word in a meaningful way. Some examples may help to clarify the criteria: "head" - if the child pointed to his head, we scored the word as known; "tag" - if the child pointed to a tag or said "it looks like a label," we scored the word as known; "wish" - "I wish I had a new dress;" "tie" - "like I can't tie my shoe;" "most" - "like the most money would be rich;" "when" - "when will you come back?" Since the purpose of the testing was to classify words as either known or unknown every effort was made to get a maximum response from every child without actually providing the answer for him.

General design of the study. The study was cast in the form of a five way factorial with independent variables of teachers' social class (middle and lower), teachers' race (Negro and white), children's social class (middle and lower), children's race (Negro and white),

and grade level (kindergarten and first grade). As sampling proceeded, it became obvious that maintaining the balance of the original factorial design was impossible. Every effort was made to locate suitable persons for maintaining the balance but some cells in the design simply could not be filled. Because of the complete absence of data in some cells and the extreme imbalance of sample sizes in other cells, a five way analysis of variance was inappropriate. The technique of "Applied Multiple Linear Regression" as outlined by Bottenberg and Ward (1963) was chosen to make an overall analysis of the data.

Description of statistical methodology used. The method outlined by Bottenberg and Ward (1963) is applicable to a wide variety of problems. This is primarily because of their claim that "All problems involving mutually exclusive categorical membership have the same essential research question, 'Are there differences in the level of criterion values which correspond to the membership in mutually exclusive categories?'"(p. 30). This means that any problem where typical analysis of variance categorizations have been made by specification of independent variables can be analyzed by use of the multiple linear regression technique outlined here. The procedure for answering the research question is relatively straightforward and consists of "...comparing (a) the results of an attempt to estimate, or predict, criterion values from a linear combination of the vectors representing the various categories with (b) the results of a comparable effort in which no account is taken of membership in these categories " (Bottenberg and Ward, 1963, p. 30). If a knowledge of the category membership leads to a reduction in the prediction error estimates then the inference may be made that there are differences in criterion level as a result of category membership. If, on the other hand, a knowledge of category membership does not lead to a reduction in prediction error, then the inference is drawn that any differences in criterion scores are trivial or nonsignificant. This lack of significance may be interpreted in the usually acceptable statistical way by saying that the differences in criterion scores could be considered as a chance occurrence and not likely to occur with any degree of consistency.

The principle advantage of using the method outlined here is that no assumptions are made regarding the size of sample in each of the categories. Although there is an implicit assumption that the overall size of the sample must be large enough to provide reliability, the demands are not so exacting as in the more traditional analysis of variance. According to Ward (1969, personal communication) the technique is relatively insensitive to variations in sample sizes by categorizations as well as to completely empty cells. The traditional analysis of variance can, of course, not tolerate empty cells and is quite sensitive to differences in within cell or category sample sizes. A complete and detailed account of the technique will be found in Bottenberg and Ward (1963) and Ward, Buckhorn, and Hall (1967).

Results and Discussion

Two aims were set for this project. One was to catalog the general vocabulary used by kindergarten and first grade teachers during normal classroom activity and to determine if that vocabulary was known to their students. The other aim was to assess the effects of socio-economic background, race, and grade level of both teachers and pupils with respect to the degree of congruence in words used by teachers that were known to their students.

Words used by kindergarten and first grade teachers. The total number of words used and the number of different words used by teachers in this sample are shown in Table 1. A total type-token ratio was computed by dividing the number of different words used by the total number of words. The ratios are presented in Table 1. It is obvious that there is a great deal of variability in both the total output of the teachers and also in the number of different words used during the sampled period. This, of course, produces some variability in the type-token ratios among the teachers. Since there is a tendency for the length of the language sample (in number of words rather than in time period sampled) to affect the type-token ratio (Johnson, 1946) it is difficult to make a strict interpretation of these ratios. However, since the sampling interval was controlled it is possible to make the interpretation that during a given period of time, some teachers produce a great deal more variability in their word usage than do other teachers. On the other hand, it may suggest that the teachers who produce the comparatively low type-token ratios are more rigid than those who produce the higher ratios (Johnson, 1946). Neither of these hypotheses or interpretations could be adequately tested in this study but there is certainly a question for further investigation implicit in the variability.

The words used by teachers were categorized according to frequency of usage in an attempt to increase useability of the lists. Words used one or more times per thousand words are shown in Appendix A. The words have been arranged alphabetically with the results of both the fall and spring testing for both kindergarten and first grade children. The values shown in the table represent the proportion of children tested on a given word who could supply an adequate definition of that word. Since the words for testing were sampled randomly from a list including all of the words used by all of the teachers there is an occasional word for which we have no test data. These words are included in the list but there is, of course, no information as to the children's knowledge of these words. Generally, the data on children's knowledge of specific words represent responses from seven to twelve children although there are a few words which were tested with only four to six children. These differences occurred because of the random sampling technique used to assign words to the children's test lists and because of the random assignment of lists to children for testing. Generally, however, the results of testing may be considered stable for our sample.

Table 1. Total number of words and number of different words used by kindergarten and first grade teachers for randomly selected time periods (45 minutes in fall and 15 minutes in spring).

Kindergarten	Teacher's Social Class	Race	Total Output		Number of Different Words		Total Type-Token Ratio	
			Fall	Spring	Fall	Spring	Fall	Spring
	Lower	N	2608	1249	355	197	.1361	.1577
	Lower	N	3023	1090	488	253	.1614	.2321
	Lower	W	1964	753	383	170	.1950	.2258
	Lower	N		1493		241		.1614
	Lower	W	4223	1026	487	215	.1153	.2096
	Middle	N		1450		269		.1855
	Middle	W	3281	738	556	242	.1695	.3279
	Middle	W	5365	1182	636	304	.1185	.2572
	Middle	W	2975	1197	408	280	.1371	.2339
	Middle	W	3023	1553	556	329	.1839	.2118
First Grade								
	Lower	N	4831	1196	469	244	.0971	.2040
	Lower	N		628		194		.3089
	Lower	W	2942	1662	410	301	.1394	.1811
	Lower	W	5382		412		.0766	
	Middle	W	4395	1632	455	325	.1035	.1991
	Middle	W	4400	1244	456	277	.1036	.2227
	Middle	W	3990	972	454	230	.1138	.2366
	Middle	W	4420	952	432	232	.0977	.2437
	Middle	W	2780	1556	413	345	.1486	.2217

Further evidence of the stability of the tests is shown by the magnitude of the internal consistency estimates. Kuder-Richardson (formula 21) estimates of the reliability coefficient were computed. The reliability coefficient was .84 for the fall testing and .80 for the spring testing. The computation procedure used produces estimates of the lower limit for the split half reliability coefficient. What this means is that if all possible split half coefficients were computed, the lowest would be at least as high as the Kuder-Richardson reported here. Test-retest coefficients from fall to spring were computed. These would be expected to be slightly lower than other estimates for two reasons. First, the time period intervening between testings produces error variance which is not evidenced in a single testing period. This variance would be expected to lower the coefficient. Second, the two forms of the vocabulary tests, although overlapping, were not identical. This would be expected to produce error variance which would lower the coefficient. A coefficient of .68 was obtained for the vocabulary test scores from fall to spring which is reliably different from a correlation of 0 ($p < .01$, $N = 49$). The vocabulary tests used here may be considered adequate with respect to reliability and stability of measurement.

It is important to note that almost every word included in the high frequency list appears on the Thorndike-Lorge list of 500 most frequently occurring words (Thorndike and Lorge, 1944, pp. 267-268). The exceptions seem to be rather specialized school words such as "clean," "count," "everybody," "nice," "plus," "quiet," and "space." This does not mean that teachers' use of vocabulary has not changed since 1944 but it is clear that the most frequently used words catalogued by Thorndike and Lorge are the same words used most frequently by teachers in our sample. The reason for this seeming lack of change in language can only be inferred but an examination of the high frequency word list suggests that many of the words are the type essential to any verbal communication and would not be too likely to change no matter how long a time interval was studied. It is also important to note that the words in the high frequency list are almost all known to the children in this sample.

Words used with a frequency of once or less per thousand words (low frequency words) have been divided into three lists. The first list (Appendix B) includes low frequency words which were known to two-thirds or more of the children tested on those words. These words may be considered to be known to children in our sample. The criterion of two-thirds may seem rather arbitrary but was selected because it has been used in a series of other studies (Dale, circa 1960, Dale and Chall, 1948). The second list (Appendix C) includes low frequency words which were known to less than two-thirds of the children tested on these words. The third list (Appendix D) includes low frequency words for which no test data were collected.

The primary advantage of having word lists such as these is not that they provide a definite guide for teaching children words they do not know but that there is probably an advantage in the

teacher's knowing what words children are least likely to know. For example, the kindergarten teacher just beginning the year with a new group of students might consider checking the group for their understanding of words such as "about," "again," "away," "but," "now," "or," and "which." If it became obvious to the teacher that the children were unable to understand or to use these words her next move might be to actively teach the children what the words mean and how to use them. This is not to suggest that children should automatically be taught any word they are unable to define but only that if there are words not known to the children which are commonly used by their teacher and which are important for adequate communication then teaching such words to the students would probably be advantageous.

Comparison of testing methods. An important methodological issue was raised in the procedure section of this paper. The issue relates to techniques for testing the young child's word knowledge. Dale (1967) has stated that "simply asking a youngster if he knows a given word works pretty well." This technique has possible flaws. First, the child may not tell the truth when he responds, and second, he may not realize that even though he has heard a word, he cannot define it. Only further questioning will reveal if the child can actually define the word. The technique for testing was to simply ask a youngster if he knew a given word. If the child said, "yes" he was then asked what the word meant. The reason for testing in this way was so that the accuracy of the more rapid method of simply asking a child if he knew a word could be assessed. Two important facts were discovered which deserve some discussion.

The first important finding was that a fifty-word vocabulary list could be tested for in less than thirty minutes for most children. This finding is important since it opens the doors to more extensive testing than is typically done. The testing time applies to both readers and non-readers and to both kindergarten and first grade children. The time for testing includes both testing techniques; that is, the children were asked if they knew a word and then were asked what it meant. Children were encouraged to talk about a word and to tell what they knew about the word so that the tester could be absolutely sure that the child either knew or did not know the meaning of that word. Even with the extended child talk, the testing time was not markedly increased.

The second important finding is that there is a statistically reliable difference in the test scores as a function of the testing technique. Children, although remarkably honest in their own appraisal of whether or not they know a word, do tend to say they know the meaning of words they do not. The mean difference or mean number of times that children said they knew the meaning but were unable to supply an adequate definition at the first grade level was 1.98 for the fall testing. The difference is reliably different from zero ($t = 6.60$, $n = 48$, $p < .01$).

What this means is that children may honestly think they know what a word means but be unable to supply a meaningful referent for that word. There is the possibility that such a word forms a part of what might be considered the child's receptive vocabulary and not of his expressive. It is difficult to say with certainty that this is actually the case but at least the notion has some merit in that, if one can trust the child's appraisal, upper limits of the child's ability to understand words said to him can be established. The mean number of times that children at the kindergarten level said they knew the meaning of a word but were unable to supply an adequate definition was 4.08 for the fall testing. This is somewhat higher than the mean for the first grade children and the difference is also statistically reliable ($\underline{t} = 6.18$, $n = 48$, $p < .01$). The fact that the kindergarten children tend to say they know more words which they are then unable to define than do the first grade children is consistent with the notion that children learn a receptive language before they learn to produce equivalent language. Indeed, the result is quite consistent with Dale's (1958) analysis of the growth of the child's vocabulary. He suggests four stages through which growth of vocabulary moves. These are: (1) the child is sure he has never seen (heard) the word before; (2) he has seen (heard) the word but does not know its meaning; (3) he can place the word in a word classification; and (4) he knows the word accurately. The testing technique of simply asking the child if he knows a word would distinguish category one from the other three. By further questioning a more refined distinction could be drawn among all four of the categories. The results indicate quite clearly that simply asking a child if he knows what a given word means is likely to produce results with a bias to overestimate the child's word knowledge. It must be emphasized that the mean overestimate for the first grade child is actually very small (1.98 words) with a very small variability among children. What this means is that for most of the first grade children tested in this study, the scores will be very nearly accurate. For kindergartners, however, the mean overestimate is somewhat larger (4.08 words) with more variability. Some of the kindergartener's scores would be very badly estimated while others would be very precise. It is difficult to tell which direction any particular youngster's score may go until he has been tested. The time saved by simply asking a youngster if he knows a particular word is more apparent than real; particularly when the inaccuracy of the scores at this level is considered. Inasmuch as fifty words can be tested in less than thirty minutes using the longer technique, it seems unreasonable to use the shorter and more inaccurate technique.

Results of the congruence score analysis. Three independent variables for teachers and pupils were analyzed for congruency. These variables were race, social class, and grade level. All of the statistical analysis done for this sample was by use of the multiple linear regression as described earlier in Chapter 2. The probability level set for acceptance of statistical reliability was $p < .05$ for all analyses in this section. Congruence scores were used as the dependent variable and were computed in the following way: All of

the words on a given child's test which were used by his teacher were scored as right or wrong. These words were then totaled and the percentage of right answers was computed. This percentage was used as the congruence estimate. The congruence, therefore, represented all of the words a child was tested on which his teacher had used during the sampled period.

Table 2 shows the effect of teacher race and social class.

Table 2

MEANS AND STANDARD DEVIATIONS OF CONGRUENCE SCORES BY TEACHER RACE AND SOCIAL CLASS

Teacher Social Class	Teacher Race: Black			White			Total		
	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n
Lower	80.74	15.24	39	81.48	19.28	23	81.02	16.99	62
Middle	69.88	20.31	8	88.71	10.42	56	86.36	13.42	64
Total	78.89	16.86	47	86.61	13.89	79	83.73	15.45	126

The independent variables of teacher race and teacher social class have significant effects upon the congruence of the teachers' vocabulary usage with their students' vocabulary knowledge. Both independent variables produce large differences in congruence estimates. The difference of more than five points between lower and middle class teachers is

statistically reliable. The difference of approximately eight points between races is also reliable. In addition, the interaction effect produced by these variables is reliable. An examination of the within-cell means shows that black lower class teachers produce lower congruence in their vocabulary usage than do white middle class teachers. It is interesting that black middle class teachers produce even less congruence. It must be noted that although the sample size reported in the cell is for eight students, only one teacher is actually represented. This, of course, markedly biases the results of this analysis.

Judging from the lower class black and white teachers' means, it seems clear that the effect in the lower class is not due to race alone. In fact, since the black middle class value is represented by one teacher with eight pupils and all of the other cells represent more teachers, there is a distinct possibility that these effects are due primarily to the lower and middle social class differences rather than to the racial differences alone. This interpretation goes significantly beyond the data reported here, but in terms of the values in Table 2 it seems reasonable that the low mean congruence score for the black middle class teacher is not reliable, but biased by this particular teacher. Since there is no way to accurately assess this statement, it must be recognized that it is, to some degree, conjecture and may not be generalizable to black middle class teachers in other groups. The difference, in fact, is so large for this single teacher that there is a possibility her score could lower the mean of the black teachers sufficiently that a difference between races seems apparent and reliable when it is actually not. Again, this interpretation must be considered cautiously since the data represent so few cases.

The means for the analysis by teacher race and grade level are shown in Table 3. It is apparent that there is a large difference between the congruence estimates for kindergarten and first grade. The mean difference in congruence estimates between kindergarten and first grade of approximately 14 points is statistically reliable. This may mean that kindergarten teachers are less likely to use words at the vocabulary level of their students than first grade teachers. The reason behind the large difference between the grades is, of course, impossible to determine from the data presented here, but it is probably a function of the degree to which the children have had practice in defining words. For example, the kindergarten children have certainly heard most of the words used by their teachers and have some intuitive hunch as to the meaning of the words. They are, however, unable to offer satisfactory definitions for the words. This is evidenced by the results reported earlier indicating a discrepancy between the words reported as known but for which adequate definitions could not be offered by the kindergarteners. What this might mean is that the kindergarteners are, indeed, able to understand the words but have simply not gained a facility in providing a verbal definition for the words. This interpretation is consistent with Dale's (Dale, 1958) analysis of vocabulary development into four relatively discrete stages

Table 3

MEANS AND STANDARD DEVIATIONS OF CONGRUENCE SCORES BY TEACHER RACE AND GRADE LEVEL

Grade	Teacher Race: Black			White			Total		
	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n
K	74.12	17.68	32	79.47	16.97	32	76.80	17.40	64
First	89.07	8.88	15	91.47	8.55	47	90.89	8.61	62
Total	78.89	16.86	47	86.61	13.89	79	83.73	15.45	126

and also with the developmental notion that a child learns a "receptive" language prior to learning an "expressive" language.

The interaction between teachers' race and grade level is statistically reliable. The effect is not large enough, however, to have much practical significance. In view of the fact that in all of the classrooms with black teachers there were only black students, the effect becomes even more difficult to interpret in a meaningful way.

The results of the analysis by teacher race and child social class are presented in Table 4. The differences in congruence scores as a function of both teacher race and child social class and their interaction are statistically reliable. Interpretation of the main effect

Table 4

MEANS AND STANDARD DEVIATIONS OF CONGRUENCE SCORES BY TEACHER RACE AND CHILD SOCIAL CLASS

Child's Social Class	Teacher Race: Black			White			Total		
	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n
Lower	76.88	16.92	33	79.95	15.47	39	78.54	16.12	72
Middle	83.64	16.30	14	93.10	8.06	40	90.65	11.41	54
Total	78.89	16.86	47	86.61	13.89	79	83.73	15.45	126

differences is straightforward. That is, the race of the teacher makes a difference in vocabulary congruence scores with the white teacher achieving more congruence than the black teacher. The social class of the child makes a difference in the congruence scores with the middle class child achieving more congruence with his teachers than the lower class child. The interaction effect is clear enough that interpretation is meaningful. The white teacher produces more congruence with middle class children than she does with lower class and more than the black teacher does with either class of youngster. The black teachers produce the least amount of congruence but more with the middle class youngster than the white teachers do with the lower class youngster. The most significant aspect of the interaction is, for this sample, that the white teachers and middle class youngsters were in the most congruence while black teachers with lower class youngsters were in the least congruence. Although there is some confounding of the dimensions because there are no white children in the black teacher's classes,

the results are significant because of the marked difference produced as a function of social class alone.

Interpretation of Table 5 is straightforward. The indication is simply that the black children sampled for this study knew fewer words used by their teachers than did the white children for their teachers. The difference seems to be more a function of the child's race than it does of the teachers but this cannot be definitely stated since there were no white children in the black teachers' classrooms.

Table 5

MEANS AND STANDARD DEVIATIONS FOR CONGRUENCE SCORES BY TEACHER'S RACE AND CHILD'S RACE

Child's Race	Teacher Race: Black			White			Total		
	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n
Black	78.89	16.85	47	79.56	15.32	27	79.14	16.21	74
White				90.27	11.61	52	90.27	11.61	52
Total	78.89	16.86	47	86.61	13.89	79	83.73	15.45	126

In view of the emphasis currently made on the importance of maintaining the black child's "home" language in order to facilitate communication, it is particularly interesting that the black children in this study exhibit no more difficulty with the white teachers than they do with the black.

This suggests, of course, that race is not the critical variable in communication difficulties. The results reported in Table 6 suggest that the critical variable is social class background rather than race. If these results are replicable, then perhaps the current push made by many that race is an important part of communication is not tenable.

Table 6

MEANS AND STANDARD DEVIATIONS BY

TEACHER RACE AND CHILD RACE AND SOCIAL CLASS

Child's race and social class	Teacher Race: Black			White			Total		
	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n
Black Low	76.88	16.92	33	77.04	15.49	22	76.94	16.21	55
Black Middle	83.64	16.30	14	90.60	8.95	5	85.47	14.82	19
White Low				83.71	15.07	17	83.71	15.07	17
White Middle				93.46	13.46	35	93.46	13.46	35
Total	78.89	16.85	47	86.61	13.88	79	83.73	15.45	126

The second order interaction appearing in Table 6 is large enough to be of importance. The interaction is among the variables of teacher race, child race, and child social class and supports the interpretation that differences are larger as a result of social class than they are as a function of race. This is particularly in evidence for the white teachers since both white and black pupils are represented as members of their classrooms. Inspection of the table reveals that in all cases the average congruence score for the middle class pupil is higher than it is for the lower class pupil. Furthermore, the black middle class pupils, when with white teachers, average higher than do the lower class white pupils when with the same white teachers. What this means is probably that, of the variables studied here, the social class of the student is the most sensitive predictor of whether or not he will know the words used by his teacher. The generalization holds, to some degree, regardless of either the pupils' race or the teachers' race although there is some differential effect produced when middle class students are with white teachers. The values producing the language differences are probably more a function of social class than of race since the white teachers were about evenly split on their social class and this split produced no apparent difference. Unfortunately, the split for the black teachers was not so even and there were no white children in their classrooms. Therefore, this generalization must be made with extreme caution.

Conclusions

The study was designed to accomplish two aims. First, an attempt was made to list the general vocabulary of kindergarten and first grade teachers and to determine if that vocabulary was known to their pupils. Second, an attempt was made to assess the effects of socio-economic background, race, and grade level of both teachers and pupils with respect to the degree of congruence in words used by teachers that were known to their pupils.

The general vocabulary used in normal classroom activity by the kindergarten and first grade teachers in this study is generally at a level known to their pupils. In fact, the words most frequently used by these teachers are also the words most frequently used by the population at large. Almost all of the words appearing on the high frequency of usage lists for this study are listed in the Thorndike-Lorge list of 500 most frequently occurring words. This, coupled with the relatively high percentage of children knowing the high frequency words clearly suggests that, in general, the teachers are using words known to the majority of their pupils.

The degree of congruence in the words used by teachers that were known by their pupils was assessed as a function of the social class background, race, and grade level of both teachers and pupils. The results, although not completely clear-cut, are as might be expected. The white children when with a white teacher result in the highest degree of vocabulary congruence and black children with a black teacher the lowest.

The interpretation of this finding is somewhat clouded by the fact that there were no white children in the black teachers' classrooms. This meant that the interaction between race of teacher and race of child could not be completely interpreted. There is a clear indication, however, that there are differences resulting from a division into groups according to race.

An important finding was that there is apparently more difference in the vocabulary congruence resulting from social class background than from racial categories. Furthermore, no difference appeared for the black children as a function of teacher race. What this means is that the black children are able to deal adequately with the vocabulary used by their white teachers. In fact, it may be easier for them to deal with the white teacher's vocabulary than it is for them to handle the black teacher's vocabulary. Again, the interpretation is clouded because there were no white children with black teachers.

Two important methodological findings were noted. First, it is possible, by using wireless microphones, to produce audio recordings of classroom teachers with sufficient clarity to list the words the

teachers use in normal classroom activity. Although there is a high level of background noise due to the children in the classroom, by careful placement of the microphone on the teacher, satisfactory recordings can be made. Second, it was noted that a fifty word vocabulary list could be used for testing of word knowledge with kindergarten and first grade youngsters and that the time required was, in almost all cases, a half hour or less. Although kindergarten children have a tendency to say they know words which further probing reveals they don't know, first graders tend to be quite frank in admitting they don't know a word.

As a result of the study, the following recommendations are made. The study is probably not worth replicating. The amount of time involved in producing the vocabulary lists is excessive for the amount of knowledge gained. It might be possible to produce reliable lists by taking shorter samples from the teachers, but the reliability of the frequency counts would be questionable. An alternative and probably productive project could be designed to clear up the unanswered question resulting from the absence of white children with black teachers in this sample. That is, since it was impossible to completely assess the effects of combinations of teacher race and pupil race, a study might be designed to assess these variables. The words used in such a study might be drawn from standard word lists such as those by Dale or Thorndike and Lorge or they might be taken from the lists resulting from this study. Although the notion of "congruence" in teachers' word usage and children's knowledge of words could not be completely assessed in this way, it would be possible to assess the effects of varying social and racial subgroups or classes on word knowledge.

References

Bernstein, B. Language and social class. British Journal of Sociology, 1960, 11, 271-276.

Bernstein, B. Social structure, language and learning. Educational Research, 1961, 3, 163-176.

Bottenberg, R. A., & Ward, J. H. Jr. Applied multiple linear regression. PRL-TDR-63-6, AD-413 128. Lackland AFB, Tex.: Personnel Research Laboratory, Aerospace Medical Division, March 1963.

Dale, E. How to improve your vocabulary. The News Letter (Ohio State University Bureau of Educational Research), 1958, 23, No. 7.

Dale, E. Vocabulary development of the underpriviledged child. Elementary English, 1965, 42, 778-786.

Dawe, H. C. A study of the effect of an educational program upon language development and related mental functions in young children. Journal of Experimental Education, 1942, 11, 200-209.

Duncan, O. D. A socioeconomic index for all occupations, and properties and characteristics of the socioeconomic index. In A. J. Reiss (Ed.), Occupations and social class. New York: Free Press of Glencoe, 1961, Chapters 6 & 7.

Hess, R. D., & Shipman, V. C. Early experience and the socialization of cognitive modes in children. Child Development, 1965, 36, 869-886.

Johnson, W. People in quandries. New York: Harper & Row, 1946.

Kean, J. M. Linguistic structure of second- and fifth-grade teachers' oral classroom language. American Educational Research Journal, 1968, 5, 4, 599-615.

Loban, W. The language of elementary school children: A study of the use and control of language and the relations among speaking, reading, writing and listening. NCTE Research Report No. 1. Champaign, Illinois: National Council of Teachers of English, 1963.

McCarty, D. Language development in children. In L. Carmichael (Ed.), Manual of Child Psychology (2nd ed.) New York: Wiley, 1954, 492-630.

Peisach, E. C. Children's comprehension of teacher and peer speech. Child Development, 1965, 36, 467-480.

Sears, P., & Dowley, E. M. Research on teaching in the nursery school. In N. L. Gage (Ed.), Handbook of Research on Teaching. Chicago: Rand McNally, 1963, 814-864.

Strickland, Ruth. The language of elementary school children: Its relationship to the language of reading textbooks and the quality of reading of selected children. Bulletin of the School of Education, 38 (4) Bloomington, Ind: Indiana University, 1962.

Thorndike, E. L., & Lorge. The teacher's word book of 30,000 words. New York: Bureau of Publications, Teacher's College, Columbia University, 1944.

Ward, J. H. Jr., Buckhorn, J., & Hall, K. Introduction to PERSUB. PRL-TR-67-3 (1). Lackland AFB, Tex: Personnel Research Laboratory, Aerospace Medical Division, August 1967.

Word	Kindergarten		First Grade	
	Fall	Spring	Fall	Spring
did	--	--	--	--
didn't	--	--	100	--
different	75	75	--	--
do(ing)	--	--	--	100
does	--	--	80	100
doesn't	--	57	40	--
don't	--	--	60	--
down	--	100	100	100
everybody	--	62	--	--
find	--	86	--	100
finger	--	100	--	--
finish(es)	--	--	100	--
first	50	87	--	100
five	--	100	--	100
floor	100	100	--	100
for	--	--	--	--
four	--	100	100	100
from	--	--	--	--
get(ting)	100	87	100	100
girl(s)	--	100	--	100
give(n,ing)	75	86	100	100
go(ing)	--	100	--	--
good	--	89	100	--
got(ten)	75	75	--	--
had	--	--	--	100
hand(s)	83	100	--	100
has	--	--	80	100
have(ing)	75	--	--	--
he	40	--	--	73
hear(s,ing)	--	100	100	100
help	100	100	100	--
her	0	86	80	--
here	--	--	80	100
him	--	78	--	100
his	25	--	--	--
home	100	86	--	100
how	--	78	100	100

Word	Kindergarten		First Grade	
	Fall	Spring	Fall	Spring
I	--	62	--	--
I'll	--	--	--	--
I'm	40	--	80	--
if	--	--	60	83
in	50	--	100	--
is	--	50	50	86
it	25	25	100	100
it's	0	--	--	75
just	--	50	50	--
know	50	78	--	87
large(er,est)	--	--	--	--
leave(ing)	100	100	--	92
left	--	86	--	100
let	--	--	--00	100
let's	--	--	22	--
letter	100	89	100	100
like	100	--	100	100
line	90	87	100	--
listen(ing)	100	--	100	--
little	--	100	--	100
long	100	--	100	86
look(s,ing)	--	100	100	100
make	100	100	--	--
man	100	--	--	--
many	50	75	67	86
may	--	75	00	100
me	80	50	--	--
minute(s)	75	--	78	100
more	--	87	--	93
my	--	--	--	--
name	--	--	100	--
need	--	87	--	83
next	75	62	--	--
nice(est,ly)	--	--	100	--
no	--	--	100	100
not	--	--	--	--
now	50	--	--	87
number	--	62	100	--

Word	Kindergarten		First Grade	
	Fall	Spring	Fall	Spring
of	20	--	--	--
off	--	87	80	100
oh	--	43	25	100
o.k.	75	--	100	100
on	--	--	80	100
one	--	100	--	100
or	25	33	--	67
other	--	100	40	--
our	60	--	--	80
out	80	100	--	100
over	67	--	--	100
page	--	--	--	100
paper	--	100	100	--
penny(ies)	100	--	--	100
people	82	75	100	--
pick	--	--	--	--
picture	--	--	--	--
play(ing)	100	100	100	100
please	100	94	--	--
plus	--	--	--	--
put(ting)	100	--	80	100
quiet(ly,est)	100	100	100	100
read	--	100	100	100
ready	--	100	80	100
remember	89	--	--	--
right	80	--	--	100
said	60	--	--	--
say(s,ing)	75	100	--	--
see	--	--	80	100
sentence	0	22	--	100
set	75	44	--	40
she	40	62	--	--
short	100	--	100	100
show(ing)	--	--	100	100
side	80	--	100	--
sit(ting)	--	100	--	100
small	--	--	100	100
so	--	78	33	--
some	--	89	60	--
something	60	--	100	100

Word	Kindergarten		First Grade	
	Fall	Spring	Fall	Spring
space(s)	83	75	75	--
square	60	--	--	--
stand(s)	100	100	--	100
start(s,ing)	--	75	80	100
stop(s)	100	100	--	100
story(ies)	--	100	100	100
table	--	100	100	100
take(n,ing)	--	100	100	86
talk(er,ing)	--	100	--	--
tell(s)	--	100	--	93
than	--	25	50	--
that	--	75	100	83
that's	--	--	--	--
the	--	57	--	--
their	--	--	--	--
them	20	71	--	--
then	--	67	60	80
there	83	78	89	83
these	--	87	100	93
they	25	50	75	87
thing(s)	38	50	--	86
think(ing)	--	100	--	100
this	--	75	--	--
those	60	--	--	67
three	67	89	--	--
time	100	100	--	100
to	--	--	--	--
today	78	87	89	100
together	--	86	100	100
too	--	--	--	37
top	60	100	100	100
tree	--	--	100	--
try(ied,ies)	80	75	100	100
turn	--	100	100	100
two	100	100	--	100
up	--	100	100	100
us	--	62	--	71
use(ing,d)	60	87	--	--
very	60	--	--	100

Word	Kindergarten		First Grade	
	Fall	Spring	Fall	Spring
wait	100	86	--	--
walk	--	100	100	--
want	75	89	--	100
was	20	75	--	100
way	75	57	--	--
we	--	--	--	86
well	50	87	100	100
went	80	87	100	100
were	--	25	--	100
what	80	62	--	100
when	--	57	90	67
where	--	89	80	--
which	25	37	--	86
who	--	--	80	100
why	--	100	80	86
will	--	57	100	--
with	60	71	--	85
word	80	75	100	100
work	100	100	--	--
would	33	50	100	--
write	--	100	100	100
yes	80	100	--	100
you	87	87	--	100
you're	--	--	40	--
your	64	37	100	100

Appendix B

Words known to children which were used by teachers at a frequency of once or fewer times per thousand words. (Classed as known if 2/3 or more of the children tested knew the word.)

absent
accident
across
afraid
after
afternoon
air
airplane(s)
almost
alone
already
always
am
angry
animal
answer
anybody
anymore
anyone
anyplace
anything
apologized
apple(s)
arrow
asleep
attention
awake
awful(ly)
baby(ies)
backwards
bacon
ball(s)
band
bar
bark(ing)
baseball
bases
basket
bat
bathroom
bathtub
bear
beautiful
bed
bees
began
behind
believe
belong(s)
beside(s)
best
bet
better
between
birthday
black
blocks
blow(ing)
body
boots
break(ing)
bright
bring
broken(n)
brother
brought
brown
build
building
bunny
bus
busy
button
cage
cake
candle
cane
can't
capital
car
care(ful, ly)
carrots
carry(ied, ing)
case
cat(s)
catch
cement
chalk
chase
check
chew
chicken
child
choose(s)
Christmas
cigar
circus
clap
class(es)
classroom
clear
clock
close(r, ly)
clothespins
cloud(s, y)
clown
coat
coins
collect(ing)
cook(ed, ing)
cookies
copy(ied)
corn
corner
correct
cost
costume
couldn't
cover(ed)
crayon
cross
cry(ied, ing)
cup

curl(s)
curve
cut
daddy
dance(ing)
dead
dear
deer
dentist
desk
dime
dirt(y)
dog
dollar
done
donkey
dot(s, ted)
downstairs
downtown
drag
drank
draw(n)
drawer
drawings
dress(ed)
dry
duck
earache
early(ier)
Easter
eat(en)
egg
eighth
electric
elevator
empty
end
enjoy(ed)
enough
erase(ing)
even
every
everyone
everything
excuse me
exercise
eyebrow
face
fair
fairy
fall
family(ies)
fast(er)
fat
father
favorite
feathers
feed
feel(ing)
feet
fell
felt
few
fight
fine
fire
fire station
fish
fix(ing)
flatten(ed)
Florida
flower
fold
folks
follow(ed, s, ing)
food
fool
forget(ting)
forty-one
found
fox
fresh
frog
front
froze
fry(ing)
fun
funny
fussing
game
garbage
gas
gave
giant
gingerbread
gone
grass
grew
ground
group
grow
grown up
guess(ing)
hair
Halloween
hamburger
handwriting
hang
hard
hasn't
hat(s)
head(s)
heard
heavy
heel
hello
hen
hide(den)
high
himself
hit(s)
hole(s)
holler
honey
hop(s, ping)
hope
horse
horseshoe
hose
hospital
hot(ter)
house
hundred(s)
hungry(eir)
hurry
hurt
hush
ice
important
Indian(s)
inside
instead
into
invite(d)
iron(ing)
isn't
jacket
jar(s)
job
jump(ing)
jungle
keep
keys

kind(ly)
kiss(ed, ing, es)
kite
lady(ies)
lake
lamb
last
late
later
learn(ed, ing)
leg(s)
lesson(s)
lettuce
library
light
lips
list
locker
lollypop
loose
lose(ing)
loud
luck
ma'am
made
magic
mark
markers
mask
match
maybe
meow(ing)
mess(ed)
middle
might(y)
milk
mind
mine
mirror
mistake
mix(ed)
mom
moment
Monday
monkey
morning
move
movie
moving
mowing
much
muscle
music
musical
must
nail(s)
near(ly)
neighbor
new
night
nine
nobody
noise(y)
nose
note
nothing
o'clock
ocean
October
office
oil
old(er)
open(ed, s)
outside
oven
package(s)
paint(ing)
pajama(s)
pan
pancake
parade
park(s)
party(ies)
pass(ed)
paste
pattern
pay(ing)
pencil
period
person
pet
piano
piece(s)
pin(s, ing)
pink
pitcher(s)
place(d)
plug(ged)
point(ing)
pop(s, ping)
post
potatoes
present
president
pretend
pretty
probably
problem(s)
promise(d)
proud
pull(s)
punch (drink)
pup(py)
purple
push(ing)
puzzle
quick(ly)
racing
rain(ing, ed)
raincoat
raise(ing)
rattle
reach(ing, ed)
really
record
refrigerator
regular
rest
return
ride(r, s)
ring(ing)
rock(s)
room
rooster
rope
rough
round
rubber
rug
ruler
run(ning, s)
safe
sail
same
save
saw
scare(d, ing)
school
scratch
scream(ing)
screen(ing)
seat
second

seed(s)
seesaw
sell
send
seven
shade(d)
shake(ing, y)
shampoo
shape
share
she's
sheep
sheet
shelf
shine(y)
shoe
shopping center
shot
should
shoulder
shout
sick
silly
simple
sing(ing)
sink
scissors
sister
six
sky
sleep
slide
sloppy
slow(ly)
smash(ing)
smile(ing)
snow
soft(ly)
soldier
somebody
someone
sometime
song
soon
sorry
spanking
splashing
spring
springtime
squirrel(s)
stack
stage
stamp
star
station
stay
step(ped)
stick(s, y)
still(ness)
stones
store(s)
straight
straightened
straws
street
strike
string(s)
study(ied)
stuff
summertime
Sunday
sunshine
surprised
sweet(ness)
sweetheart
swim
swing(s)
tag
tail
tall
tangerines
tape
tar
taste
teach
teacher(s)
tear(ing, s)
teeny
teeth
telephone
tent
terrible
thank you
third
thread
throat(s)
through
Thursday
tie
tight(en)
tiny
tiptoe
tired
toe
told
tomorrow
took
tools
torn
touch
towel
toy(s)
trace
track(s)
traffic
train
trash
trash can
treat(ing)
triangle
trick
tricycle(s)
trip
trouble
truck
trunk
turtle
twenty
twice
umbrella
under
underlining
underneath
understand
understood
unhappy
uniform
upon
upstairs
vine
visit(s)
voice
wagon
wake

wasn't
waste(d, ing)
wastebasket
watch
water
watermelons
wear(ing)
weather
wedding
welcome
wet
wheel
whenever
wherever
white
wild
wind(y)
window
wink
wires
wish
without
woke
women
woods
worry
wow
wrap(ping)
wrong
wrote
yard
yardstick
yell
yellow
yesterday
yourself(ves)
zebra
zero

Appendix C

Words not known to children which were used at a frequency of once or fewer times per thousand words. (Classed as not known if less than 2/3 of the children tested knew the word.)

abbreviation
able
act(ing)
activity
actually
adventure(s)
ago
ahead
Alaska
allow(ed)
also
altogether
amount
ankle
anyhow
anyway
applaud
arithmetic
aroma
art
attached
attendant
auditorium
azalea
bay
bill(s)
bloom(s, ing)
booklet
both
breath
breeze
cabinet
cafeteria
caught
cave
cavity
celebrated
certain
chance
change(s, ing, ed)
characters
chart
chestnut
choice
clam
classify
colt
complete
concrete
confusion
consonants
construction
contest
control
convince(ed)
cooperate
copper
country
crisp
cub
decided
degrees
delivers
describe(ing)
design
despite
dictionary
direction(s)
disappeared
display
disturb(ing)
doubt
dough
drove
each
easy(ily, ier)
edge
either
equivalent
especially
ever
exact(ly)
except
eyelid
fasten(ed)
fault
favor
fawn
fourth
full(ly)
geese
goes
gray
great(er)
greenish
guilty
held
hemlock
hive
holiday
hoof
idea
identify
illustrate
imagine
impolite
instructor(s)
interrupt
islands
judged
kin
knew
lack
language
lay(s, ing)
lean(ing)
less
liberty
lobster
lot
low(er)
main
majority

mall
map
marvelous
math
mathematics
Mayflower
meets
milk carton
mincemeat
misplaced
most
nation
neat
necessary(ily)
net(s)
nod
nostrils
notice(ed)
numerals
nurse
oak
object
officer
only
outfit
owl
own
palm
pardon me
part(s)
particular
peculiar
pegs
perfect(ly)
pine
plaid
poem
policeman
polite
position
prancing
prefer
preserves
quart
quite
raindrop
rear
reason
receiver
recognize(s)
remind(ed, s)
republic
review
rhythm stick
ribs
rid
route
row
ruin(ing)
Russia
sasafras
scar
scientist
scraps
sea
seen
select
shall
silver
sizzles
snore(ing)
solid
solve
sort
South Viet Nam
spark
spoil(ed)
spyglass
stem
stood
stray
subtraction
suggest(ed)
supervisor
suppose(d)
sure(ly)
suspect
syllable(s)
tan
taught
tests
there's
they're
they've
thick
thin
though
thought
'til
title
triangle (musical instrument)
type
undo
unkind
unless
until
unusual
usual(ly)
vacation
vase
vein(s)
vibration
view
vote(s)
Wednesday
week
weird
weren't
whatever
whether
whichever
while
whole
whose
wonder
wouldn't
wrist
yawn
year
yet

Appendix D

Words used by teachers at a frequency of once or fewer times per thousand words for which test data on children was not taken.

above
acceptable
ache
acorn
add
addition
afterwards
against
ain't
alike
allegiance
along
America
among
ant(s)
anywhere
apart
appeared
apron
aquarium
aren't
arm
arrnage
ash
assignment
astronaut
ate
attend
attic
baby sitters
backside
bad
bags
baking
balance(ing)
bald
balloon
bandaids
bandstand
bang(ing)
barbecue
bare
basement
beach buggy
beads
beak
bean(s)
beat
been
beg
begun
behave
bell
below
bend(ing)
bib
bicycle
biddy
Bingo
bit
bite
bitter
bitty
blackboard
blades
blank
blanket
blazing
blessing
blimp
blink
blocking
blossoms
blouse
blueish
blue jay
board
boat
bobbing
boldly
born
borrow
bother(ed, ing)
bought
bounce
bound
bows
brains
brand
brave
Brazil
bread
breakfast
breathe
brick(s)
broom
brush
bucket
buckle
built
burn
bush
butterflies
buy(ing)
buzzing
bye
cabbage
caboose
calendar
calf
California
came
Canada
candidate
captain(s)
card
cast
cause
chain(s)
cheers
chick
chin
chop(ping)

chose(n)
church
city
clerk
climb(ing)
clothes
clover
cold(er)
collar
column
combination
comfortable
comma
company
compound
conferences
confused
container
cone
continue
cool(er)
cornstalk
corsage
cot
cottonwood
cough(ed)
couple
courage
course
cousin
cow
cowboy
crab
cracked
cranberry
crawl(ing)
crooked
crosswalk
crown(ed)
crumbly
crumply(ing)
cube
cubby
cubbyhole
curious
curtain
cushion
cute
dandruff
dangerous
dark
darling
date
December
decorate(d)
decorations
deep
destroy
devils
dictate
die(d)
dim
dinner
discover
dish
dishpan(s)
divided
do-dad
doctor
doll
dollies
door(s)
doorbell(s)
drew
drink
dried
dropped
drum(s)
drum major
duckling
dump
during
dust
dying
ear(s)
eight
eighteen
elbow(s)
elect(ed)
election
elephant
eleven
emergency
enemy
England
entered
equation(s)
eraser
evergreen
everyday
everywhere
excited
exclamation
excuse
expect
explain(ing)
extra
eyelash(es)
fact
fade(d)
famed
fan
far
farm
farmer(s)
fellows
fern
fertilizer
fever
fifteen
fifth
fifty
figure
fill(ed, ing)
film
fingernail
Finland
fireplace(s)
fit(s)
flag
glat
flew
flies
float
flour
fly(ing)
fog
foot
football
forest
forgot(ten)
fork
forth
fouled
fourteen
frame
France
free
Friday
friend
friendly
frighten(ed)
frost

fur
further
galls
garage
garden
gate
gay
gentle
gentlemen
ghost(s)
giraffe
glad
gland
glass
gloves
glue(y)
goat
goblin(s)
God
gold
golf
goodbye
goodness
goose
gracious
grade
graders
grandfather
granny
grape
green
grocery
grown
guarding
guide
gum(my)
gun(s)
hadn't
half
ham
hammer
handful
handkerchief
hanger
happen(ed, ing)
hardly
hate
haunt(ing)
haven't
Hawaii
hay
he'll
he's
healthy
heart
helicopter
here's
herself
hi
hickory
hill
hinge
hips
hired
history
hook
housewife
howling
huckleberry
humps
hunt(ing)
husband
I'd
I've
indeed
indenting
India
indivisible
insect
interest(ing)
interruption
its
itself
Jack-o-lantern
jam
jammed
janitor
Japan
jeep
jelly
jingle bells
join
July
jury
justice
kangaroo
kept
kick
kid(s)
kill
kindergarten
kitten
kitty
Kleenex
knee
knob
knock
knot
ladder
lamp
land
landed
lantern(s)
lap(s)
laugh
lavender
lazy
lead(s)
leader
leaf
leaves
ledge
lemon
lid(s)
lie
lift
lighthouse
limbs
lipstick
live(s, d)
liver
lock
logs
lost
lousy
love
lovely
lunch(es)
lunchroom
machine
mad
maddening
maid
mail
mailman
majorette
mama

manners
manual
maple
March
margin
married
mash
masking
mat(s)
matter
May
meant
meantime
meat
medium
meeting
melody
melted
member(s)
men
mention(ed)
merry-go-round
message
messy
met
Mexico
mice
microphone
midnight
mild
milkman
minus
miss(ed, ing)
misunderstood
mittens
money
month
moon
mop
moss
motor
mound
mountain
mouse
mouth
mushroom
mustn's
myself
mystery
nature
neck
necktie
needle
neigh
neither
next
never
nineteen
ninety
ninth
noon
nope
North Carolina
Norway
November
nursery
nut
of course
often
once
one-half
onto
opposite
orange
orchestra
order(s)
otherwise
ought
outline
oval
overshadow
Pacific Ocean
pad
paddle
paid
pain
pair(s)
pal(s)
pardon
past
peace
pear(s)
pecan
peek(ing)
peel(ing)
pegboard
peopled
Pepsi Cola
perfume
perhaps
pharynx
phone
phonics
phrases
physical education
pie
pig
piglet
pigpen
Pilgrim
pinch
pipe
plainly
plan
plank
plant(s)
plate
playhouse
pledge
plenty
pocket
pocketbook
polar bear
ponytail
poor
popcorn
poplar
portrait
possible
poster
postman
pot
pour(ing)
practice
presently
press
printing
prize
project
protect
purr
push-up
quarter(s)
question(s)
quit
rabbit(s)
racer
races
racquet
radish(es)
rag
rainbow
rainhat

rainy
rake
ran
rang
range
rather
raw
ray(s)
real
realize
recorder(s)
rectangle
refreshment(s)
related
relative
reverse
reversal
riddle
rinse
road
roast
rode
role
roll
roller
roof
root(s)
rot
rub
rude
rumor
rush(ed)
sad
salvage
sand
Santa Clause
sap
sat
Saturday
sauce
scene
science
scientific
scissors
scotts
section
seem
sense(s)
separate
serve
service
seventeen
several
sew
she'll
shell
ship(s)
shirt(s)
shore
shouldn't
shovel
shut
shy
silently
since
sir
sixteen
sixteenth
sixty
sixty-five
sixty-one
size
skates
skin
skinny
skip
skirts
sleeve
sled
smart
smoke
smooth
snake
sniffed
snowshoe rabbit
socks
someplace(s)
someway
somewhere
son
sore
sour
south
Spain
spangled
speak
special
spell(ed)
spent
spill
splendid
split
spoke
spout
spread
squash(ing)
squat
squeeze
staple
state
stockings
stomach
stormy
stove
stretch
stripes
strong
stuck
stumbled
style
such
sucking
suit
sum
sumac
summer
sun
sunny
superman
sweater(s)
Sweden
sweep
swirled
swollen
sworn
tailgate
tap
teapot
television
ten
tennis
thank(s)
Thanksgiving
therefore
they'll
thirteen
thirty
thirty-two
threw
throw(n)
thumb
tint
tip

tissue
toadstool
toasters
tonight
tossed
town
travel
true
tub
tug
tumbling
tummy
tune
T.V.
twelve
twenty-eight
twenty-five
twist
United States of America
unplug
upper
upside
urged
vegetables
Viet Nam
village
Virginia
voiceless
vowel
wad(ding)
waist
wall
walnut
wander
warm
wash(ed, ing)
Washington
wave
we'd
we've
whale
where's
whine
whipped
whisker
whisper
whistled
who's
whom
wide
wiggly
win(ner, ning)
wing
winter
wintertime
wipe
wireless
within
wobbly
won
wonderful
won't
wore
world
worms
wreck
wrinkle(d)
yeah
yonder
you'd
you'll
you've
young
zip(ping)